

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/07397

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ H01L27/04, H01L21/822, H01L23/12, H01L23/50

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ H01L27/04, H01L21/822, H01L23/12, H01L23/50,
H04G4/33-4/40

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1922-1996	Jitsuyo Shinan Toroku Koho	1996-2003
Kokai Jitsuyo Shinan Koho	1971-2003	Toroku Jitsuyo Shinan Koho	1994-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/0024407 A1 (NEC CORP.), 28 February, 2002 (28.02.02),	1-3, 5-9, 17-19
Y	Full text; Figs. 1A to 10B & JP 2002-164760 A Full text; Figs. 1 to 10	4, 10-16, 20-24
X	JP 2001-338836 A (Sumitomo Metal Industries, Ltd.),	1, 2, 5-9, 17-19
Y	07 December, 2001 (07.12.01), Full text; Figs. 1 to 13 (Family: none)	3, 4, 10-16, 20-24
X	JP 2001-267751 A (Matsushita Electric Industrial Co., Ltd.),	1, 2, 5-9, 17-19
Y	28 September, 2001 (28.09.01), Full text; Figs. 1 to 7 (Family: none)	3, 4, 10-16, 20-24

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:
 "A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier document but published on or after the international filing date
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 "P" document published prior to the international filing date but later than the priority date claimed

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 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
 "&" document member of the same patent family

Date of the actual completion of the international search
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Date of mailing of the international search report
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PCT/JP03/07397

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 11-177276 A (Sumitomo Bakelite Co., Ltd.), 02 July, 1999 (02.07.99), Par. Nos. [0002], [0029] (Family: none)	4
Y	EP 788118 A1 (TDK CORP.), 06 August, 1997 (06.08.97), Page 2, lines 24 to 26 & JP 9-208627 A Par. No. [0002] & KR 97063283 A & US 5914283 A	4
Y	US 2002/0011606 A1 (Shigenori OTAKE), 31 January, 2002 (31.01.02), Par. No. [0074]; Fig. 13 & JP 2002-9244 A Par. No. [0047]; Fig. 13 & KR 2000126 A	10,11,20-22
Y	JP 6-216309 A (Oki Electric Industry Co., Ltd.), 05 August, 1994 (05.08.94), Par. Nos. [0010] to [0012]; Fig. 1 (Family: none)	12,13,23
Y	JP 2001-274314 A (Kabushiki Kaisha Kankyo Denji Gijutsu Kenkyusho), 05 October, 2001 (05.10.01), Par. Nos. [0026] to [0033]; Fig. 4 (Family: none)	14-16
Y	JP 8-330738 A (Sumitomo Metal Industries, Ltd.), 13 December, 1996 (13.12.96), Full text; Figs. 1 to 5 (Family: none)	24